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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,231	03/10/2004	Richard Hammond	ASC-057C1	2980
51414 7590 05/15/2007 GOODWIN PROCTER LLP PATENT ADMINISTRATOR EXCHANGE PLACE BOSTON, MA 02109-2881			EXAMINER GHYKA, ALEXANDER G	
			ART UNIT 2812	PAPER NUMBER
			MAIL DATE 05/15/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/797,231

Applicant(s)

HAMMOND ET AL.

Examiner

Alexander G. Ghyska

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 28-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

ALEXANDER GHYKA  
PRIMARY EXAMINER

AU 2812  
*[Signature]*

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

### **DETAILED ACTION**

Applicants' response of 3/07/2007 has been considered and entered in the record. Applicants' arguments have been considered but they are not persuasive for the reasons as discussed below

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 28-35 and 40-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Ismail (Si/SiGe High Speed Field Effect Transistors, IEEE 1995) "Ismail" for the reasons of record.**

The present Claims generally require providing a strained semiconductor layer; providing a SiGe layer over said strained semiconductor layer; and selectively removing said SiGe layer to expose said strained semiconductor layer.

Ismail et al shows a FET formed providing a strained semiconductor layer; providing a SiGe layer over the strained semiconductor layer and selective removal of SiGe in one region to expose the strained semiconductor layer. See Figure 7, pg 20.01.03. The strained semiconductor layer comprises Si as required by present Claim 29 and 49. A relaxed semiconductor layer comprising Si and Ge is provided beneath the strained layer as required by present Claims 31-33 and 49-52. See Figure 7, page

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20.1.3. With respect to Claims 34-35 and 53-55, Ismail discloses an insulator layer and exemplifies silicon dioxide. See last paragraph of column 1, page 20.1.3. With respect to Claims 40-44, Ismail discloses MOSFETs. See Figure 9, page 20.1.3. With respect to Claims 45 and 46, Ismail et al discloses a buried channel and gate as required by the afore mentioned Claims. See Figures 7 and 9, column 20.1.3. With respect to Claims 47-48, Ismail disclose source and drain regions which are doped as required by the present Claims. See Figures 7 and 9, column 20.1.3. Therefore, the afore mentioned Claims are anticipated.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail (Si/SiGe High Speed Field Effect Transistors, IEEE 1995) "Ismail", as applied to claims 28-35 and 40-55 above, and further in view of Chang et al (Selective Etching of SiGe on SiGe/Si Heterostructures, J. Electrochem, Soc. Vol 138, No. 1, 1991 "Chang et al") for the reasons of record.**

Ismail is relied upon as discussed above. As discussed above, Ismail discloses selectively removing SiGe in one region where the N-MODFET is formed, but not in another region.

However, Ismail does not disclose the oxidation and etch technique as required by the afore mentioned Claims.

Chang et al disclose a method for selectively removing SiGe disposed over Si by chemically oxidizing the SiGe to form a SiGe oxide in one region but not in another and then removing the oxidized SiGe. See page 202, columns 1 and 2 and page 203, Fig 4.

It would be obvious for one of ordinary skill in the art, at the time of the invention, to use the oxidation and etch method of Chang et al, to form the SiGe/Si structures of Ismail, for their known benefit in the art of selectively removing the SiGe layer as disclosed by the Chang et al reference.

### ***Response to Applicants' Arguments***

Applicants argue that Ismail does not teach a method of selectively removing a SiGe layer formed over a strained semiconductor layer, as recited in the present

Claims, because Ismail is utterly silent about any method utilized to form his structure of Figure 7. Applicants' argue that Figure 7 is a schematic model, and that the Examiner erroneously infers Applicants' method from Ismail's structure, when Ismail's structure could be fabricated in other ways, for example rather than selectively removing layers from his N-MODFET structure (right side of Figure 7), Ismail could selectively add layers to his P-MODFET structure (left side of Figure 7).

The Examiner maintains that Ismail discloses that *both* channels are epitaxially grown on Si substrates. See page 20.1.2, second column, last paragraph. Moreover, the Examiner notes that the two top layers of the stack between the P-MODFET and N-MODFET, are narrower than the layers below on the N-MODFET side, which indicates that a portion has been selectively removed. See Figure 7. Therefore, Ismail clearly discloses selective removal of the layers from the structure, and anticipates the present Claims.

With respect to the rejection under 35 USC 103, Applicants argue with respect to the Ismail reference as discussed above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Friday during general business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

May 7, 2007  
AGG

ALEXANDER GHYKA  
PRIMARY EXAMINER

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